CLAIMS:

1. A method of forming a crystalline phase material comprising:

providing a stress inducing material operatively adjacent a crystalline material of a first crystalline phase, the stress inducing material having a first thermal coefficient of expansion, the crystalline material of the first crystalline phase having a second thermal coefficient of expansion, the first coefficient being less than the second coefficient; and

annealing the crystalline material of the first crystalline phase under conditions effective to transform it to a second crystalline phase.

2. The method of claim 1 comprising providing the stress inducing material over the first crystalline phase material.

3. The method of claim 1 comprising providing the stress inducing material under the first crystalline phase material.

4. The method of claim 1 comprising providing the stress inducing material to a thickness which is equal to or greater than a thickness of the first phase crystalline material.

5. The method of claim 1 comprising providing the stress inducing material over and in contact with the first crystalline phase material.

6. The method of claim 1 comprising providing the stress inducing material under and in contact with the first crystalline phase material.

7. The method of claim 1 wherein the stress inducing material comprises SiO_2.

8. The method of claim 1 wherein the stress inducing material comprises Si_3N_4.

9. The method of claim 1 wherein the stress inducing material is provided before said annealing.

10. A method of lowering required activation energy in transforming a crystalline material from a first crystalline phase to a more dense second crystalline phase comprising providing a compressive stress inducing material B operatively adjacent the material of the first crystalline phase during an anneal to the second crystalline phase, with the compressive stress inducing material having a first thermal coefficient of expansion, the crystalline material of the first crystalline phase having a second thermal coefficient of expansion, the first coefficient being less than the second coefficient.

11. A method of forming a crystalline phase material comprising:

providing a semiconductor wafer having opposing first and second sides;

forming a crystalline material of a first crystalline phase over the first side of the wafer;

forming a stress inducing material over the second side of the wafer, the stress inducing material having a first thermal coefficient of expansion, the crystalline material of the first crystalline phase having a second thermal coefficient of expansion, the first coefficient being greater than the second coefficient; and

annealing the crystalline material of the first crystalline phase under conditions effective to transform it to a second crystalline phase.

12. The method of claim 11 comprising forming the stress inducing material on the second side of the wafer.

13. The method of claim 11 wherein the crystalline material comprises a refractory metal silicide, and the stress inducing material comprises TiN.

14. The method of claim 11 wherein the crystalline material comprises $TiSi_x$, the first crystalline phase is C49, the second crystalline phase is C54, and the stress inducing material comprises TiN.

15. The method of claim 11 wherein the crystalline material comprises $TiSi_x$, the first crystalline phase is C49, and the second crystalline phase is C54

16. The method of claim 11 wherein the stress inducing material is provided before said annealing.

17. A method of forming a crystalline phase material comprising:

providing a stress inducing material within a crystalline material of a first crystalline phase; and

annealing the crystalline material of the first crystalline phase under conditions effective to transform it to a second crystalline phase.

18. The method of claim 17 comprising ion implanting the stress inducing material into the first crystalline phase material.

19. The method of claim 17 comprising *in situ* providing the stress inducing material into the first crystalline phase material during deposition of the first crystalline phase material.

20. The method of claim 17 comprising providing stress inducing atoms within the first crystalline phase material to a concentration from 10^{16} - 10^{22} atoms/cm^3.

21. A method of forming a refractory metal silicide comprising:

forming a refractory metal silicide of a first crystalline phase;

providing compressive stress inducing atoms within the refractory metal silicide of the first crystalline phase, the compressive stress inducing atoms being larger than silicon atoms of the silicide; and

with the compressive stress inducing atoms within the first phase refractory metal silicide, annealing the refractory metal silicide of the first crystalline phase under conditions effective to transform said silicide to a more dense second crystalline phase.

Sub B1

22. The method of claim 21 wherein the refractory metal silicide comprises $TiSi_x$, and the first crystalline phase is C49 and the second crystalline phase is C54.

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23. The method of claim 21 comprising ion implanting the compressive stress inducing atoms into the first crystalline phase refractory metal silicide.

Sub B2

24. The method of claim 21 comprising *in situ* providing the compressive stress inducing atoms into a refractory metal layer during deposition of said refractory metal layer over an underlying silicon containing substrate; and

annealing the refractory metal layer to form said refractory metal silicide of the first crystalline phase from the refractory metal and silicon of the underlying substrate.

25. The method of claim 21 wherein the compressive stress inducing atoms are selected from the group consisting of Ge, W and Co, or mixtures thereof.

26. The method of claim 21 comprising providing the atoms to a concentration within the refractory metal silicide from 10^{16} - 10^{22} atoms/cm^3.

27. A method of forming an electrically conductive line comprising:

forming a semiconductive material over a substrate;

forming a refractory metal silicide of a first crystalline phase over and in ohmic electrical connection with the semiconductive material;

providing a compressive stress inducing material proximate the refractory metal silicide of the first crystalline phase;

after providing the compressive stress inducing material, annealing the refractory metal silicide of the first crystalline phase to transform said silicide to a more dense and more electrically conductive second crystalline phase; and

patterning the semiconductive material and the refractory metal silicide into a conductive line.

28. The method of claim 27 wherein the compressive stress inducing material is provided within the refractory metal silicide of the first crystalline phase.

29. The method of claim 27 wherein the compressive stress inducing material is provided operatively adjacent the refractory metal silicide of the first crystalline phase.

30. The method of claim 27 wherein the patterning is conducted before the annealing.

31. The method of claim 27 wherein the patterning is conducted before the annealing, and the compressive stress inducing material is provided after the patterning.

32. The method of claim 27 wherein the patterning is conducted after the annealing.

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33. The method of claim 27 wherein the refractory metal silicide comprises $TiSi_x$, and the first crystalline phase is C49 and the second crystalline phase is C54.

34. The method of claim 27 comprising providing the compressive stress inducing material over the first crystalline phase refractory metal silicide.

35. The method of claim 27 comprising providing the compressive stress inducing material over the first crystalline phase refractory metal silicide, the compressive stress inducing material having a thickness equal to or greater than a thickness of the first phase refractory metal silicide.

36. The method of claim 27 comprising providing the compressive stress inducing material under the first crystalline phase refractory metal silicide.

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37. The method of claim 27 wherein the compressive stress inducing material comprises SiO_2.

38. The method of claim 27 wherein the compressive stress inducing material comprises Si_3N_4.

39. The method of claim 27 wherein the compressive stress inducing material is provided both in and operatively adjacent the first phase crystalline silicide.

40. A method of forming a refractory metal silicide comprising: forming a refractory metal on a silicon containing substrate;

providing a compressive stress inducing material proximate the refractory metal;

after providing the compressive stress inducing material, annealing the refractory metal to form a refractory metal silicide of a first crystalline phase from the refractory metal and silicon of the underlying substrate; and

annealing the refractory metal silicide of the first crystalline phase to transform the first phase silicide to a more dense second crystalline phase.

41. The method of claim 40 wherein the refractory metal silicide comprises $TiSi_X$, and the first crystalline phase is C49 and the second crystalline phase is C54.

42. The method of claim 40 comprising providing the compressive stress inducing material within the first crystalline phase refractory metal silicide.

43. The method of claim 40 comprising providing the compressive stress inducing material over the first crystalline phase refractory metal silicide.

44. The method of claim 40 comprising providing the compressive stress inducing material over the first crystalline phase refractory metal silicide to a thickness equal to or greater than a thickness of the first phase refractory metal silicide.

Sub B3

45. The method of claim 40 comprising providing the compressive stress inducing material under the first crystalline phase refractory metal silicide.

46. A method of forming a crystalline phase material comprising:

forming a crystalline material of a first crystalline phase over a substrate;

forming a layer over the first phase crystalline material; and

after forming the layer, annealing the crystalline material of the first crystalline phase under conditions effective to transform it to a second crystalline phase.

47. The method of claim 46 wherein the crystalline material comprises $TiSi_x$, the first crystalline phase is C49, and the second crystalline phase is C54

48. A method of forming a crystalline phase material comprising:

forming a crystalline material of a first crystalline phase over a substrate;

providing dopant atoms to within the first phase crystalline material; and

after providing the dopant atoms, annealing the crystalline material of the first crystalline phase under conditions effective to transform it to a second crystalline phase.

49. The method of claim 48 wherein the crystalline material comprises $TiSi_x$, the first crystalline phase is C49, and the second crystalline phase is C54

50. The method of claim 48 wherein the providing comprises ion implanting.

51. The method of claim 48 wherein the providing comprises gas diffusion doping.

add C3

add E5